

SIMULATION

prepared by

Dr/ Sanaa Saber Mohamed

Critical Care Nursing Department



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Introduction

Simulation in education has been used at least since the time of World War II. Simulation in nursing education in the form of static manikins, role playing, CPR manikins, and other techniques has also been utilized as a teaching modality for quite some time. High-fidelity simulation is a relatively new area in nursing education and utilizes high technology simulation monitors and computers. This technology offers new avenues for teaching student nurses scenarios as well as critical thinking and reflection on lived experience and practice.

Definition

Simulation is the imitation of some real thing, state of affairs, or process. The act of simulating something generally entails representing certain key characteristics or behaviors of a selected physical or abstract system



Advantages

- 1- Simulation offers opportunities to practice rare and critical events in a safe and controlled environment.
- 2- Utilize unlimited practice without risk to patients.
- 3- The potential to increase the speed of acquisition of clinical skills.
- 4- Team training.
- 5- Can allow a standardized curriculum to be developed.
- 6- Potential to decrease the number and effect of errors through crisis resource management.

Disadvantages

- 1- It is often impossible to imitate actual physiological signs or symptoms.
- 2- Highly cost.
- 3- Emotional feeling cannot be reflected by the simulator.
- 4- Lack of faculty time and training in simulation instruction.
- 5- Negative transfer. Negative transfer occurs if the student learns something incorrectly due to imperfect simulation.



Type of training simulations

- * **"Live" simulation:** where real people use simulated or "dummy" equipment in the real world.
- * **"virtual" simulation :** where real people use simulated equipment in a simulated world, or virtual environment
- * **"Constructive" simulation:** where simulated people use simulated equipment in a simulated environment.



Type of models

Active models

Active models that attempt to reproduce living anatomy or physiology are recent developments. The famous [“Harvey” manikins](#) was developed at the [University of Miami](#) and is able to recreate many of the physical findings of the [cardiology](#) examination, including [palpation](#), [auscultation](#), and [electrocardiography](#).

Interactive models

More recently, interactive models have been developed that respond to actions taken by a student or physician. Until recently, these simulations were two dimensional computer programs that acted more like a textbook than a patient. Computer simulations have the advantage of allowing a student to make judgments, and also to make errors. The process of iterative learning through assessment, evaluation, decision making, and error correction creates a much stronger learning environment than passive instruction.

Computer simulators:

Simulators have been proposed as an ideal tool for assessment of students for clinical skills. The most expensive type of simulators which allow student to be trained on critical thinking and judgment.



THANK
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